

The Impact of Porter's Strategies Utilized on the Level of E-commerce Adopted by Large Service Enterprises in Thailand

Luckxawan Pimsawadi

Lester A. Digman*

ABSTRACT

Unsuccessful E-commerce (EC) implementations and the hesitancy to adopt EC by Thai businesses resulted from either the lack of business strategy formulation or from other relevant factors. This research was conducted on large services enterprises from several service industry sectors within the Bangkok region of Thailand, and was designed to examine the effects of different competitive strategies in terms of cost leadership, focus, differentiation, speed, and quality and how they influenced the adoption of EC at the web-based, business-to-consumer (B2C), and business-to-business (B2B) levels. The study also examined whether the competitive environment and internal organizational factors influenced the level of EC adoption. The study applied the survey method and in-depth interviews. Data collection was conducted by mailing a self-administrated questionnaire to the CEO of the target company. 186 Questionnaires were completed in total. The results confirmed that Porter's generic framework is valid in the Thai business environment. The findings revealed that large Thai enterprises across several service industry sectors had determined their level of EC adoption in accordance with their competitive strategies. Speed strategy was the best predictor of the level of EC adoption. Most of the firms whose primary competitive strategy involved cost leadership had adopted all levels of EC. Of the three levels of EC, web-based applications were much more popular than the alternative strategies. Moreover, the changes in customer behaviors and life styles are critical factors that service businesses must consider when determining the level of EC adoption. The firms must carefully determine the existing levels IT resources, IT capabilities, IT knowledge, and to what degree they require and may utilize outsourcing. It will result in guidelines about the future need to implement EC applications or the decision to withdraw.

บทคัดย่อ

ในภาวะปัจจุบันธุรกิจต่างๆ ในประเทศไทยเผชิญปัญหาไม่ประสบความสำเร็จในการนำพาณิชย์อิเล็กทรอนิกส์เข้ามาใช้ในองค์กร รวมถึงการที่บางธุรกิจยังลังเลที่จะยอมรับพาณิชย์อิเล็กทรอนิกส์เข้ามาใช้ในองค์กรด้วยนั้นพบว่า สาเหตุสำคัญมาจากการขาดการวางแผนกลยุทธ์ทางธุรกิจที่ชัดเจน และปัจจัยอื่นๆ เช่น ความรุนแรงของการแข่งขัน ความสามารถในการนำระบบเทคโนโลยีสารสนเทศเข้ามาใช้ในองค์กร เป็นต้น ดังนั้น การวิจัยนี้จัดทำขึ้นเพื่อศึกษาถึงการนำกลยุทธ์การแข่งขันทางธุรกิจที่แตกต่างกัน ได้แก่ ผู้นำด้านต้นทุน การมุ่งเน้นเฉพาะกลุ่ม การสร้างความแตกต่าง ความรวดเร็ว และคุณภาพ มีผลกระทบต่อการพิจารณาระดับของการนำพาณิชย์อิเล็กทรอนิกส์เข้ามาใช้ในองค์กร เช่น Web-Based, Business-to-Consumer และ Business-to-Business รวมถึงเมื่อมีปัจจัยด้านสภาพแวดล้อมภายนอก และสภาพแวดล้อมภายในเข้ามากระทบ ซึ่งจากการสำรวจความคิดเห็นผู้บริหารระดับสูงของบริษัทขนาดใหญ่ในอุตสาหกรรมบริการ ที่เขตกรุงเทพมหานคร และเขตปริมณฑล พบว่า โมเดลกลยุทธ์การแข่งขันทางธุรกิจ (Porter's Generic Strategies) ที่องค์กรใช้ในระดับที่แตกต่างกันนั้น มีผลกระทบต่อการศึกษาในการนำพาณิชย์อิเล็กทรอนิกส์เข้ามาปฏิบัติใช้ในองค์กรภายใต้สภาวะแวดล้อมของประเทศไทย นอกจากนี้ ยังพบว่าธุรกิจที่เน้นการใช้กลยุทธ์ความรวดเร็วนั้นมีผลกระทบต่อการศึกษาในการนำพาณิชย์อิเล็กทรอนิกส์เข้ามาใช้ในองค์กร เพื่อความได้เปรียบในการแข่งขัน และประเด็นใหม่ที่ค้นพบ

*Prof. Dr. Lester A. Digman

College of Business Administration,
University of Nebraska-Lincoln, U.S.A.
Advisor

จากการวิจัยนี้ พบว่าการเปลี่ยนแปลงของพฤติกรรมผู้บริโภค และรูปแบบการดำเนินชีวิตเป็นปัจจัยสำคัญยิ่งต่อองค์กรควรจะต้องพิจารณาในการนำพาณิชย์อิเล็กทรอนิกส์เข้ามาใช้ในองค์กรเพื่อความได้เปรียบในเชิงแข่งขัน และประสบความสำเร็จในการนำการพาพาณิชย์อิเล็กทรอนิกส์เข้ามาใช้ในองค์กร

INTRODUCTION

E-commerce (EC) channels allow businesses to get to the customer faster, with more velocity, and more value (Budhwani, 2001). Wang and Chueng, (2004) –stated that most early adopters of EC, especially E-businesses, were service firms. Porter (2001) argued that each business strategy used affected the determination of the level of EC adoption in order to generate a competitive advantage.

In contrast, large enterprises in Thailand have a low rate of EC adoption when compared to Western countries and other countries in Asia (Leartwongsatein & Wongpinunwatana, 2003).

Many proactive Thai service businesses including banking and financial institutions, computer hardware firms, and mobile phone telecommunications firms adopted EC commerce strategies, but did so on a limited basis. They implemented B2C, and B2B, but they did not implement advanced EC applications only the basic EC activities of each level: web-based, (Thongbaiyai, 2004; Leartwongsatein & Wongpinunwatana, 2003; Art-Erm, 2002; Limthongchai, 2002; Stevenson, 2001). According to Beach (2004), the above research raises the question of whether the businesses that successfully adopted EC applications did so because of the influence of their strategic goals or from other factors. Did the determination to adopt EC depend on their firm's strategies or were they merely copying the actions of other firms in the industry? Are the western research claims true –that strategic management will lead to EC adoption, in order to achieve competitive advantage –within the Thai business environment?

To understand these factors is critical to the successful implementation of EC in Thailand. This study will investigate these issues which form the problem of this study. (1) How do business competitive strategies affect each level of EC adoption? If it is true that business strategies affect the level of EC adoption in the Thailand business environment, then businesses can hold onto the right position to improve competitive advantage. If it is not true, it means the western framework is not effective in the Thailand context. (2) How do competitive environment factors influence the relationship between business competitive strategies and each level of EC. (3) How do organizational factors influence the relationship between competitive strategies and each level of EC adoption? It is yet to be determined

whether these findings will hold true in Thailand It could be assumed that these issues might be causing Thai businesses to be reluctant to adopt EC and/or invest in advanced levels of EC applications.

In order to investigate whether the level of EC adopted by large enterprises in Thailand depends upon specific competitive strategies utilized, the first question posed by the present study is:

Research Question 1: What are the outcomes achieved by large service enterprises in Thailand that adopt EC to achieve cost leadership, focus, differentiation, speed, and quality strategies through web-based, B2C, and B2B strategic models?

Research Question 2: How do the competitive environment factors (number of competitors, distribution channels, and market share) influence the relationship between the different competitive strategies used and the level of EC adopted by large service enterprises in Thailand?

Research question 3: How do organizational factors (degree of decentralization, IT resources, IT capabilities, IT knowledge, and CEO support) affect the creation of business strategies and the level of EC adopted by large service enterprises in Thailand?

The results of the study would be significant for several reasons: it provides real perspectives and contributes to a better understanding of the strategic implications for business practitioners as well as academics concerning the level of adoption of EC by firms as they consider such factors as cost leadership, focus, differentiation, speed, and quality, it provides perspective to strategic leaders and gives them a better understanding of how the organization's resources should be deployed and what distinct competencies should be developed, this study will identify the critical and significant issues underlying the opportunities and barriers of adopting into EC strategies, and it provides guidance to strategic leaders about what core IT competencies and IT systems should be developed to support full scale implementation of high level or full scale EC activities.

LITERATURE REVIEW

EC Adoption and Competitive Advantage

Reviewing the strategic literature, there are two major approaches that can explain competitive advantage: resource-based view (Barney, 1991) and structural approach (Porter, 1985). The basis of the resource-based view is that unique resources are the sources of sustainable competitive advantage. Based on the resource-based view framework, Barney (1991) believed that firms try to find resources and capabilities that can lead to competitive advantage. Information technology (IT) resources and EC technology tools have been viewed especially as possibly having a role in creating a sustainable competitive advantage in terms of IT capital, proprietary technology, technical IT skills, and managerial IT skills. Those IT resources could be

designed to distinguish their attributes in terms of being valuable, rare among a firm's current and potential competition, and imperfectly imitable. Especially, there cannot be strategically equivalent substitutes for these resources. The structural approach or position-based approach developed by Porter (1980), and the five competitive forces framework by Porter (1985) are used in the structural approach to measure which industry suits the organization to create competitive advantage. However, the concept of competitive advantage truly became popular from Porter's (1985) conceptualization of the competitive strategies framework. Porter believes that competitive advantage grows from the value a firm is able to create for its buyers that exceeds the firm's cost of creating the product and/or service. Digman (2006) indicated that competitive advantage relates to how well a business is able to conduct the activities along the value chain, including any number of factors, such as technological advantages and production efficiencies. Porter (1985) defines competitive advantage as the advantage a firm gains over its competitors because it is better able to transform resources, or inputs, into goods and services at maximum profit, in order to cope with the five competitive forces that drive industry competition. Porter proposes two basic types of competitive advantage, which combined with the scope of activities for which an organization seeks to achieve them, leads to the three generic competitive strategic approaches to outperforming other firms in an industry: cost leadership, focus, and differentiation strategy.

In the new economy, organizations in many industries should integrate the internet with traditional business processes to gain a competitive advantage. Porter (2001) has expressed the belief that by integrating the internet into the overall strategies, this powerful new technology becomes an equally powerful force for competitive advantage. Even though the value of EC in the U.S. and Europe has reached \$3 trillion, there have also been numerous failures. There have been many internet firm bankruptcies (Constantinides, 2004). Researchers have found that these failures come from a lack of basic commercial and managerial experience, insufficient market insight, technological pitfalls, and especially, poor strategies (Lumpkin et al., 2002; Finkelstein, 2001; Porter, 2001; Christensen, 2001). Riolli and Luthans (2001) contended that in the digital marketplace, especially in the start-up phase, success hinges on a strategic fit between the internal environment and the external environment. Critical factors to achieving this fit are such attributes as internal consistency, organizational IT capabilities, customer satisfaction, and competition.

Barriers to EC Adoption in Thailand

No matter that EC has already been implemented in many countries and the internet has been used to improve efficiency and effectiveness in today's business environment, many businesses in Thailand are still reluctant to go online with EC on the internet. Thailand has had a slow growth rate of EC when compared with neighboring developing countries (Rotchanakitumnuai and Speece, 2003). The Thai government accepts that B2C is unsuccessful (Thongbaiyai, 2004). One of the serious obstacles is the consumers' behaviors and attitudes; they still focus on the offline purchasing method. It is because they can assure they are able to obtain the right specification of product/service, what they really want to buy. The Business Development Department of Thailand revealed the EC market value in the end up year 2005 is estimated up to 14,500 million Baht (one USD = 40 Baht). The proportion of B2B is about 77 percent and B2C 33 percent. The popular EC B2C categories include books and printed materials, software and hardware, movies and entertainment, and hotels. However, it is a very low proportion when compared to the EC worldwide market value of about 7.5 trillion dollars (OECD, 2005). However, that survey revealed that Thai internet users view EC as essential in the future of business in Thailand (77.35 %). Some companies, especially service companies, have adopted the first stage of EC and have their own websites only for the purposes of advertising and public relations campaigns, increasing channels, and providing after sales service in order to increase customer satisfaction and increase the value of the products/services to the customers (Piyaket, 2005). Nevertheless, not every size of company can perform EC at once and at all levels of EC activities. It needs a critical determination of its business strategy, organizational resources, and external factors for finding the position which generates the optimum competitive advantage position. Thus, when do companies plan to transform their business processes to become brick and click companies? Strategic leaders now are facing the question of how to achieve competitive advantage in the EC environment. Especially, they must rethink how to create business strategies, to bundle and exploit firm resources, to decide what are the appropriate levels of EC adoption.

Barriers to EC have been identified by a number of researchers (Rotchanakitumnuai and Speece, 2003). Organizations' abilities and organization resources have been barriers for some firms. Teo et al. (1997: 1998) noted that technological and environmental factors might be barriers. There seem to have been various constraints cultural, business, and legal –on the adoption of EC in Thailand.

Hence, Thailand has had an especially slow growth rate of EC when compared to neighboring countries such as Korea, Japan, and Singapore. NECTEC (2004) identified the primary constraints as stemming from regulations, legal restrictions, and the high cost of computer technologies.

The National Electronics and Computer Technology Center of Thailand and National Statistical Office conducted the Information and Communication Technology survey in 2004. The report revealed those business sectors which have proactive strategies and had more likely adopted EC by having their own company websites: computer and related businesses (11.2%), wholesale (3.3%), real estate (1.8%), and hotel and restaurant (1.7%). Thailand EC transaction values separated by the type of EC are as follows –B2B transaction value (90%), B2C transaction value (2%) and B2G (Business-to-Government) transaction value (8%). However, that survey revealed Thai internet users view EC to be essential to future business in Thailand (77.35 %).

The Level of EC Domain

Executives now face a challenging question: What level of EC transformation is appropriate for their companies? There is no one best level for all companies because each level offers potential benefits that are consistent with the organization's exploitative capabilities and depends on managers who view IT capabilities as a source of opportunities. Many researchers have classified the level of EC by distinguishing EC activities in other ways based on the activities domain such as connection, communication, commerce, and collaboration. The most widely accepted classifications are B2C and B2B (Kraemer et al., 2002; Turban et al., 2000). As reviewed in the literature, there are many researchers with different views of the scope and definition of the levels EC activities or applications. Barua et al. (2001) added that most large firms are reluctant to fully adopt at this stage. Barua et al. (2001) believed they may be lacking appropriate guidance or still have concerns that the technology is still evolving. Fifth is the EC advanced stage. Sixth is the final stage of EC, the phase in which the business and management processes assimilate and become a norm and organizations focus on continuous improvement. At the heart of the E-business: B2B process is value chain collaboration through IT competence (IT resources, IT capabilities, IT knowledge) that involves a shift from physical to digital connection throughout the organization in order to achieve successful E-business transitions at each level. However, the most popular framework, such as Jih (2002), Laudon and Laudon (2002), Porter (2001), Turban et al. (2000) classifies EC activities or EC applications into three categories for purposes of communication and coordination: web-based enabled, B2C, and B2B. Feeny (2001) adds

that firms might achieve innovational benefits by integrating the internet in marketing services and manufacturing activities.

This present study, therefore, defines EC adoption as the use of the internet for buying, selling, and supporting products or services that can be measured in terms of the level of EC activities adoption. For this study, the framework applied by Turban et al. (2000), and Feeny (2001) has been modified, since those models had been applied and tested in a services context. Hence, it is appropriate to test in the context of the service industry in Thailand that had adopted early stages of EC. They classified the activities of each EC level based on EC activities, respectively:

Web-based Company: At this level, using e-mail instead of using the telephone, using facsimile to communicate with business partners, or using World Wide Web (WWW) to search for information. Developing the company's website as a new market channel for providing the company's general information.

Business-to-Consumer (B2C): Putting transaction processes online, the companies use their website to carry out business transactions (e.g., buying and selling products and services). Ordering systems, payment systems, and delivery systems are activities included at this level.

Business-to-Business (B2B): is electronic business throughout the value chain. At this level the organizations link business process transactions on their own website with the company operating systems such as accounting systems, ordering system, purchasing and inventory systems (as a part of value chain).

The Effect of Different Competitive Strategies Used on the Levels of EC Adoption

The strategic management literature widely examined large services firms in various service industries, because large firms have more potential to implement multiple levels of EC applications. Especially, large service firms have used outstanding strategies to compete with rivals in dynamic environments, and have high potential IT competencies to assimilate the process of innovation (Hadaya, 2004; Riquelme 2002). Ventakaraman and Mohan (2004) indicated that large service firms typically use proactive strategies in order to adopt EC, implemented to offer fast response as the customers' needs evolve. Thus, large firms, which have high potential in financial resources and IT resources, could readily adopt advanced technology EC according to their current business strategies usage. Moreover, empirical study indicated that there has been a positive relationship between strategy and performance in business services firms.

Lee (2003) indicated that the most successful EC adoption comes from a firm's business strategy as evaluates its IT investment and decides whether to

adopt EC. The key successes are in service firms that compete in terms of how the firm achieves economy of scale and productivity. Literature indicated the majority of large service firms usually used a combination of competitive strategies among cost leadership strategy, focus strategy, and differentiation strategy. Interestingly, those results revealed that service firms in different service industry sectors tend to provide distinct services with value added through different levels of EC adopted based on the different business strategies used. Some large service firms decided to implement EC such as web-based company, B2C, and B2B electronic commerce to transform themselves to brick and click companies.

In the EC environment, Porter (1985) perceived that firms used different business strategies. The business activities represent the firm's strategic actions to determine the appropriate level for the firm's resources, customers' behaviors, and competitive environment. Hence, the inherent benefits of each level of EC to generate superior competitive advantage depend on their how strategies are used to take action concerning business activities. Blosh and Pigneur and Segev (1996) argued that firms determined the level of EC adoption based on their perception of the business value of EC, business strategies used, and target customer's needs. They indicated that firms first adopted web-based in order to provide product information to the customers available at anytime anywhere, while B2C provides new market channels to generate new sales volume from different geographic users, while B2B provides redefinition of the core business through integration of the business value chain. As the literature is reviewed, based on the generic strategies framework, it is found that firms which have different strategic actions had the propensity to adopt different levels of EC, depending on how the firm perceives the inherent benefits of EC as follows;

Cost Leadership Strategy: Kim (2000) believed these kinds of firms had perceived the distinct benefits of EC in terms of cost reduction in communication, advertising and promotion, and inventory and purchasing. Porter (2001) pointed out that these kinds of firms are more likely to adopt EC in order to enjoy high levels of pricing flexibility and efficient competition through integration of the whole business process of the value chain. The firms that used this strategy tend to heavily adopt B2C applications to gain the low cost of a non-physical store and to tailor products/ services to customers. As well, the firms that used cost leadership strategy had adopted B2B in order to exploit technological capabilities and collaborations among institutions.

Focus Strategy: Bloch, Pigneur and Segev (1996) argued that these firms should be concerned with EC adoption, especially B2C, since this level provides new marketing channels to complement the existing channel to different customer geographies. It could also provide special services in niche or

specific markets, and offer different marketing strategies on products and services for specific groups.

Differentiation Strategy: Kim et al. (2004) indicated banking industries are mostly using differentiation strategy in service quality and differentiation in brand in order to meet the customers' needs. Hence, this kind of firm is more likely to install multi-level EC activities to support different customer groups. Firms tended to develop a web-based company in order to provide differentiation, service anytime anywhere, and post-sales service to increase customer satisfaction. This kind of firm decided to adopt B2C activities as well in order to provide a market channel for the firms that did not have physical branches in remote geographic areas, while they also had adopted B2B activities to offer differentiation to business partners.

Speed Strategy: the empirical work of Lee (2003) argued that service firms face strong competition on their readiness of response to customer needs. The results confirmed that service businesses are typically focused on speed of service delivery to their customers. Thus, firms that show heavy use of this strategy are trying to improve their business processes through alignment of service standards, timely responses, and increased speed of service to create customer satisfaction. As a result, such firms are more likely to decide to adopt EC in order to enhance speed of service delivery to meet the standards of a given industry.

Quality Strategy: Rapert and Wren (1999) noted that determining quality of services is viewed as a strategic action for competing in a dynamic competitive environment. According to Porter (2001), physical firms that launch themselves online cannot avoid facing competition on basis of quality of service. Empirical studies support the concept that service quality affects firms' performance. They argued that those firms which implemented different levels of EC did so due to resource constraints. However, Teo and Pian (2003) noted that service firms usually strive for standardized services to meet standards and customer satisfaction. Therefore, the firms that heavily used quality strategy are more likely adopt EC in order to develop unique service systems and integrate the operational processes on the value chain, and achieve quality standards of service. According to the summarized Western literature above, does it mean that Thai businesses had not successfully adopted EC as web-based, B2C, or B2B because of influence factors from their strategies utilized or from other factors? Does their determination to adopt EC really depend on their firms strategies or do they adopt EC as other firms do? Do the strategies identified in Western research lead to EC adoption, in order to enhance a competitive advantage in the Thailand business context? The questions above highlight the problems in the minds of Thai business persons who

are making the determination and are still reluctant to adopt EC. Those problems require more research in a Thailand context. Hence, the following hypothesis was proposed to test the effect of independent variables (competitive strategies) on the dependent variables (the level of EC adoption) as follows:

H1: The level of EC adopted (in terms of web-based, B2C, and B2B) by large service enterprises in Thailand will be positively related to the different competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed, and quality).

Moderating Factors

Competitive Environment Factors

Following, ECRC (2005), Lertwongsatein and Wonpinuwatana (2003), Piyaket (2002) statement argued that the proactive Thai businesses, according to the forces of EC trends, had adopted EC at the first stage. They had adopted the trend in order to leverage experience through the trial and error, and develop a greater understanding of EC technology. Moreover, based on their strategic actions, they had decided to adopt EC in order to show foresight and intellectual leadership. Even now, Thai customer demographics show lifestyle trends that cannot be used to shape industry boundaries and create a new competitive space yet. Competition at this stage is to identify opportunities available to the firm in terms of brand image, communication, and cost savings.

Stevenson (2001) claimed that Thailand has different environment factors such as the country's culture, nature of industries, consumers' lifestyles, behaviors and attitudes, and firms' technological resources potential, which might be factors leading to reluctance to adopt the different levels of EC. Therefore, Thai businesses must reconsider the competitive environment factors and organizational factors to determine EC installation. Many researchers such as McAfee (2003), Barua et al. (2002) and Porter (1985, 1980) supported Stevenson's (2001) view that firms across industries had adopted EC based on competitive strategies used, IT competencies, resources potential, competitive environment, nature of a given industries and target customer' behaviors and attitudes. Especially, they indicated that EC installation required a new business model, new methods to work with all parties, change management, and long term commitment to systematic strategic execution planning rather than short-term strategic tactical implementation.

In addition, based on the strategic literature and MIS research, Croteau and Li (2003), Steinfield et al. (2002), Foster et al. (2000) believed that competitive pressure from a given industry affected the rate of EC adoption. Hence, Porter's (1985) five forces model was applied in this study in order to link competitive environments based on the five forces conceptual framework for generic strategies. Porter's generic

strategies has its attributes that can serve to defend against competitive force in the EC environment.

Number of Competitors Robert (1990) defines competitors relate to anything, anyone, anyway, and any movement that takes customers' money away. Following new industry structures and new forms of competition, the competition is no longer viewed exclusively in terms of efforts by a specific company in an industry to offer lower prices and outperform other companies in that industry, but is viewed instead on the basis of customer demand and satisfaction. Accordingly, large firms had high potential to readily adopt innovation or new technology. The first mover firms tend to adopt EC in various levels depending on their own company' resources and strategic actions. It means that they are facing higher pressure from direct competitors both offline and online in major markets. The increasing number of competitors that have adopted EC prompts the company to reconsider current business strategies usage in order to evaluate the competitive situation and its own company strength, and then reconsider internal and external factors in order to decide to adopt EC applications to transform itself to either pure click, or brick-and-click, or remain brick-and-mortar.

Distribution Channels

Christensen and Raymor (2003) said today there is strong competition in the E-market place through efficient distribution channels, that provide a direct link to customers in the E-value chain, that is available online at any time anywhere and interacts with customers, suppliers, and stakeholders. Those factors mean firms must exploit the inherent benefits of new distribution channels to offer for non-tangible goods and services that reach customers across boundaries. The new online channels can promote efforts to reach a new segment of customers that cannot access the physical outlets. For the physical store, the internet can be used to integrate existing order systems with web-based orders, to distribute E-catalogs, and to provide in-depth product information. Thus, customers can pre-search product information and then make purchases at the available physical outlet. Based on assumptions of the five forces model, today online channels are leading to a superior competitive advantage position. This is because customers can search for the best deal (lowest price) in a short time and suppliers can bid for the lowest cost. Internet channels can provide effective communication and enhance members of the distribution channel. Steinfield et al. (2002) argued that firms adopt EC channels based on the following issues: their strategic positioning in the market, how they are concerned with the response to the competitors that have strong competence in using various channels, how they are concerned with a decreasing rate of market coverage, and penetration of each existing distribution channel used.

Market Share Porter (2001) indicated the reasons why firms craved their strategic actions in order to effort increase market share. Since long-term competitive advantage is generated from profit maximization, market share is associated with profitability. Thus, many firms must seek to increase their sales relative to competitors. Based on the generic strategies and resource-based view, firms perceived that EC adoption is an effective tool to achieve increased market share. Currently, EC has its benefits in terms of generating new market share as follows: economies of scale –the higher sales volume can be instrumental in developing cost advantage, and increased bargaining power –a large player has an advantage in negotiations with suppliers and channel members. Therefore, the following hypothesis was proposed:

H 2: The relationship between the different competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed, and quality) and the level of EC adopted (in terms of web-based, B2C and B2B) by large service enterprises in Thailand is moderated by competitive environment factors (in terms of number of competitors, distribution, and market share).

Organizational Factors

Many researchers such as McAfee (2003), Porter (1985) indicated that critical to firms determination to install EC were their firm's resources potential and organization competencies. Especially, they indicated that EC installations required new business models, new methods to work with all parties, change management, and long term commitment to systematic strategic execution planning rather than short-term strategic tactical implementation. Another perspective is offered by Croteau and Li (2003) who specified that the success factors of EC adoption by a physical company is not only measured by financial indicators, but also depends on top management as a change agent for supporting integration of the internet to market strategy, investing in information technology (IT) resources, and increasing organizational readiness. In addition, Xu et al. (2004), believed that organization context is the critical factor related to EC adoption.

Degree of Decentralization

Prahalad and Krishnan (2002) proposed the form of organization network suitable to EC implementation: organizations in the next decade should use a horizontal organizational model. They proposed enhancement and combination of vertical and horizontal integration. They indicated that often the failure of IT project implementation could be attributed to internal organization problems. Wargin and Dobeiy (2001) suggested that in order to transform a brick-and-click company, executives must first reengineer their business processes. Tornatzky et al. (1983) confirm that higher levels of innovation are most likely to emerge from firms with an

organic structure characterized by decentralization, informal relationships, and a high level of complexity. Decentralized structures are characterized by empowerment, autonomy, and encouragement of ideas. Preffers and Santos (1998) defined decentralization as the degree of participant commitment to new ideas. The degree of decentralization reflects the locus of authority and decision-making autonomy is dispersed or concentrated in an organization. Centralization is tight control from the top chain of command, less empowerment, and a low degree of participation in decision-making. Kraemer et al. (2000) indicate decentralization had direct influence on successful implementation. For example, Dell Company successfully implemented EC with processes to perform build to order, especially for the kind of products driven by rapid technological change. Dell Company has a decentralized matrix structure. The benefits are good support of growth and innovation, and greater flexibility, even though it is clearly a tradeoff over maintaining control. Thus, this present study believed that decentralization has an influence on the relationship between business strategies used and the level of EC adopted.

Information Technology Resources

IT resources are defined as a tangible resource comprising physical IT infrastructure such as number of computers, servers, and IT staff. Bharadwaj (2002) revealed that large U. S. firms have invested a great amount of money in IT systems for the purpose of gaining a competitive advantage. IT facilitates the integration of the entire business (2003) believes that many organizations made much investment in IT resources in order to conduct EC activities such as enterprise resource planning (ERP), supply chain management (SCM), customer relationship management (CRM), and EC operations. Why do firms invest so much in information systems while there are no guarantees of successful outcomes? As described earlier, the resource-based view (RBV) (Barney, 1991) theory of strategy could explain why firms choose to exploit their unique resources in order to achieve a sustained competitive advantage.

Barney (1991) argued that the RBV approach viewed IT resources as physical capital that a firm could develop into a unique organization asset. Physical companies should carefully invest in IT resources including both an IS and a platform that will support and enable effective implementation of various EC activities: commercial, collaborative, communication, connectivity, and computing (Zwass, 2003). Especially, organizations need technology policies for deploying and utilizing the firm's technological resources. Ross and Beath (2002) noted that IT has become more closely tied to business strategies used. Thus, to determine IT resource investments, organizations must reconsider these two relationships: technology scope (how the firm shares its IT infrastructure and business solutions), and strategic objective (how the firm

trades off between short-term profitability and long term growth). One important issue in strategic management is IT resources allocation.

Information Technology Capabilities

Bharadwaj (2000) refers to IT capabilities as the ability to mobilize and deploy IT-based resources in combination or co-present with other resources and capabilities. Porter (2001) argued that IT positions of firms vary in know-how, the role of IT in firm operations, and dependence on business strategies used. If a firm chooses to be the first innovator in an industry, it needs to have a sufficient amount of research and development (R&D) budget, technology, and product development. Organizations try to increase their IT capacities within the IT infrastructure to help serve their strategic direction. In addition, Croteau and Li (2003) stated that IT capability is vital for EC initiatives, especially to support E-customer relationship management (E-CRM), because the greater the firm's IT capabilities, the more likely it will attain customers, products, markets, and cost-based benefits. IT capabilities could be measured through such dimensions as information systems, software, hardware, and platforms (bandwidth, e-mail, web-based products, and search engines).

Prahalad and Krishnan (2002) suggested that IT capabilities could be measured as follows: (1) The ability to connect seamlessly with existing applications in the infrastructure, even the legacy system, (2) The ability to accommodate changes without incurring significant costs or time, (3) The ability to connect the multiple technology platforms. Prahalad and Krishnan (2002) argued that the rise and fall of pure click E-business ventures, or brick-and-click, comes from the lack of IT capabilities. At the root of this problem are underestimates of the complexities of logistics, and the lack of a good logistics system for effective support and enhancement of the link between suppliers and partners.

Information Technology Knowledge

Ventakaraman and Mohan (2004) pointed that based on strategic thinking, firms must develop strong IT knowledge in order to exploit the network of knowledge to increase the economy of expertise. Based on the RBV perspective (Barney, 1991), IT human capital resources are such employees as IT professionals, IT specialists, and other knowledge workers, all of whom are important for IT-based organizations, especially dot-com companies. Organizations can develop unique IT knowledge resources through human resource systems, intelligence systems, and social relationships. The knowledge-based view moves away from how a firm combines, applies, and exploits its tangible resources and turns instead to the firm's know-how, because IT knowledge resources are usually difficult to imitate and are socially complex. The knowledge-based

view of the firm posits that these IT knowledge assets may produce a long-term sustained competitive advantage. Thus, the firm's decision whether to adopt EC depends on how the firm has the ability to learn quickly in order to alter its IT knowledge resource configuration in adapting to market changes.

CEO Support

Wang and Cheung (2004) argued that the CEO and top management is the change agent to enhance and stimulate the EC environment in the organization, because the CEO is in the important position to make final decisions to adopt EC in order to create competitive advantage opportunities. They argued that unless the technology can perform the task by itself, the CEO is the main person who leads the people from multiple work units to make the EC implementation succeed, because the CEO not only runs the firm but also provides direction in vision and day-to-day operating procedures. Especially during the first wave of EC implementation, the organization may meet stiff resistance because fear of the unknown is a common reaction. Thus, for successful adoption at early stages of EC, the CEO has the main role to act as change agent to conduct change management, and well as support and enhance knowledge innovation throughout the organization. Hence, the following hypothesis was proposed:

H3: The relationship between the different competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed and quality) and the level of EC adopted (in terms of web-based, B2C, B2B) by large service enterprises in Thailand is moderated by the organizational factors (in terms of degree of decentralization, IT resources, IT capabilities, IT knowledge, and CEO support).

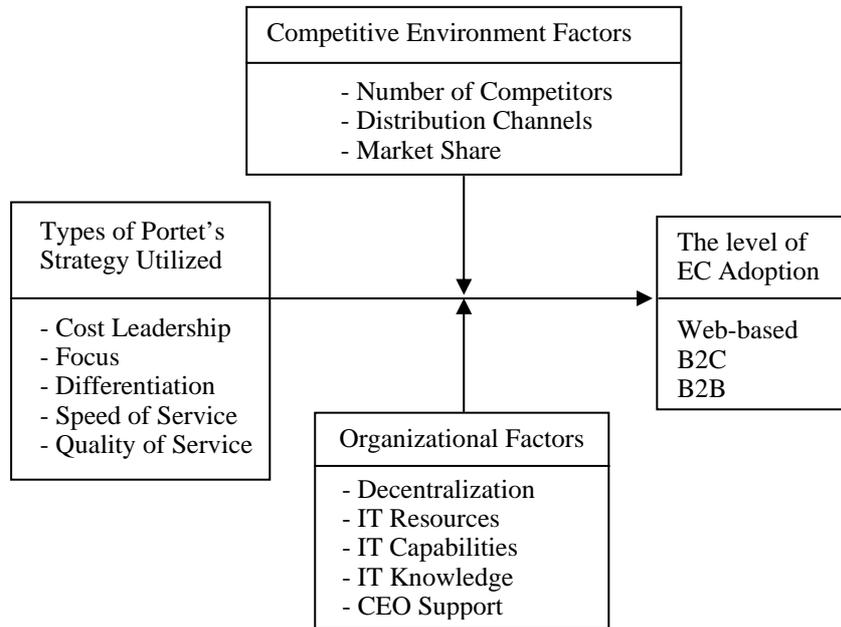
Based on the summarized literature in strategic management and organization innovation, the purpose of the exploratory study is to investigate the effects of different competitive strategies utilized on the level of EC adoption.

METHODOLOGY

Research Design

As discussed earlier, the study aims to investigate the process and enhances collaboration. In addition, McAfee level of EC adoption by large enterprises. Hence, the organization is the unit of analysis. It investigates the behavior of the organizations in terms of the level of EC adoption: web-based, B2C and B2B. This study defines large firms based on the criteria of Bank of Thailand and Advance Research Company, Thailand. Their definition is that a large company's total revenue per annum is over 200 million baht.

Figure 1: Research Model of Level of EC Adoption



The study population is large enterprises in all service industries in Thailand. The target sample includes organizations in service industries in the capital city of Bangkok, as this location is the business hub with a large number of companies of all sizes. The service industries sector was selected as the sample for this study because of its high degree of competition. These firms compete primarily on the basis of quality and speed of service. We may then determine what level of EC adoption might correlate to the current business competitive strategies utilized along with other factors. The target service industries sector has a high degree of competition in such areas as telecommunications, computing, banking, business consulting service, logistics and transportation, and airline ticketing. The large service enterprises must have the following criteria: first, the enterprises must be in the service industry sector. Second, those companies must be located in Bangkok and its outskirts (Nonthaburi, Pratumtani, Samutprakarn, Samutsakorn, and Nakornprathom). The company's total revenue must be higher than 200 million baht per annum.

Conceptualization and Operationalization of Constructs

Validation of constructs was achieved by using multi-item measures of each variable to specify the construct domains. This was done through a theoretical analysis of items drawn from literature, and by a panel of both experts and academics in the EC field. The constructs were based on theories and operationalized with a high degree of validity and reliability. To insure the consistency and reliability, a standard definition of EC was provided before

asking the questions. Internal consistency and measurement reliability of the items was verified by computing Cronbach's alpha. The low inter-items, lower than 0.6 were deleted from the study because the items were not drawn from the same domain.

The Level of EC Adoption

The study will measure the outcomes of this dependent variable (level of EC adoption) through the identification of three levels of adoption: the questionnaire will specify the number of items of each variable of the dependent variables that were combined to create the score. The questionnaire was designed to ask the respondents about each level of EC activity. The questions 1.1 to 1.10 measure the adoption rate of each level of EC activity were combined to create the score. The five-point Likert scale ranging 1 to 5 was applied to measure each level of EC activities usage. The range of scores could be: 1 indicates 'very low', 2 indicates 'low', 3 indicates 'moderate', 4 indicates 'high', and 5 indicates 'very high'.

Web-based company's activities: will be measured in terms of basic level of EC adoption. Web-based activities are measured in terms of using e-mail instead of using the telephone, using facsimile to communicate with business partners, using World Wide Web to search for information about new products and services. Developing the company's website as a new market channel for providing the company's general information; providing web-based marketing; providing information about the company's products, services, and after sales service.

Business-to-consumer (B2C) activities: will be measured in terms of whether companies use their

website to carry out business transactions. Ordering systems, payment systems both offline and online, and delivery systems are activities included at this level. In addition, the questionnaire asks the respondents to identify what percentage of EC transactions are between customers and suppliers, and suppliers directly

Business-to-business (B2B) activities: are measured in terms of the organizations that develop the company's web site to link the business process transactions on the company's operating systems such as accounting systems, ordering system, purchasing and inventory systems. The level may include linking some back office operating systems on the Internet and allowing business partners to connect directly with company operating systems to check products in stock, to determine whether the company has enough products on hand to process the next purchase. Therefore, the total score for each question is five points.

The range of total mean scores of the level of EC adoption could be: 1.00 to 1.49 indicates 'very low', 1.50 to 2.49 indicates 'low', 2.50 to 3.49 indicates 'moderate', 3.50 to 4.49 indicates 'high', 4.50 to 5.00 indicates 'very high'. The highest total mean scores indicate the most heavily adopted B2B level of EC adopted by large firms.

Different Competitive Strategies Utilized

The components of the different competitive strategies framework consist of these strategies: cost leadership, focus, differentiation, speed, and quality. Hence, the set of independent variables are related.

All measurements from conceptual studies or empirical studies were adapted for the context of EC adoption. Most of the questions to measure the usage of this strategy were adapted from earlier studies (Pecotich et al. 2003; Daneil and Grimshaw, 2002; Teng, 2000). Each question asks the respondents to identify the level of current competitive strategies usage when compared to the given industry. Each of the variables was measured on the five-point Likert scale. The score ratings are: 1 indicates 'very low', 2 indicates 'low', 3 indicates 'moderate', 4 indicates 'high', and 5 indicates 'very high'. However, the total scores for each question are five points, while the range of total mean scores are as follows: 1.00 to 1.49 indicates 'very low', 1.50 to 2.49 indicates 'low', 2.50 to 3.49 indicates 'moderate', 3.50 to 4.49 indicates 'high', 4.50 to 5.00 indicates 'very high'.

Hence, the highest and the lowest range of total mean scores indicate the highest and the lowest use of the business competitive strategy utilized by large enterprises.

Moderating Factors

Competitive Environmental Factors

Most of the questions were used to measure the level to which the competitive environmental factors (Number of Competitors, distribution channels, market share moderated the relationship between

business competitive strategies and the level of EC adoption. The questions were developed from earlier studies (Wang and Cheung, 2004; Xu et al. (2004); Tippins and Dohi, (2003); Damanpour, 1991). Each of the factors was measured on the five-point Likert scale in which 1 indicates 'very low', 2 indicates 'low', 3 indicates 'moderate', 4 indicates 'high', and 5 indicates 'very high'. The total score for each question is five points, while the range of total mean scores indicates the following: 1.00 to 1.49 indicates 'very low', 1.50 to 2.49 indicates 'low', 2.50 to 3.49 indicates 'moderate', 3.50 to 4.49 indicates 'high', 4.50 to 5.00 indicates 'very high'. Hence, the highest range of total mean scores indicates the highest level of operating interaction with the competitive environment factors.

Organizational Factors

Most of the questions to measure the usage of this strategy were adapted from earlier studies (Pecotich et al. 2003; Daneil and Grimshaw, 2002; Teng, (2000). Each of the variables was measured on the five-point Likert scale. Range 1 to 5 was applied to measure the level of those strategies used. Each question asks the respondents to identify the pressure from organizational factors (Degree of decentralization, IT resources, IT knowledge, IT capabilities, CEO support) when compared to the given industry. The range of scores is the same: 1 indicates 'very low', 2 indicates 'low', 3 indicates 'moderate', 4 indicates 'high', 5 indicates 'very high'. The total score for each question is five points, while the range of total mean scores indicates the following: 1.00 to 1.49 indicates 'very low', 1.50 to 2.49 indicates 'low', 2.50 to 3.49 indicates 'moderate', 3.50 to 4.49 indicates 'high', 4.50 to 5.00 indicates 'very high'. Therefore, the highest range of total mean scores indicates the moderating effect of the organizational factors on the relationship between business strategies used and the level of E-commerce adoption.

Sample Selection

The probability sample is randomly selected from the total population within service industry sectors. The service industries sectors are the businesses that support production, trading, and consuming. Therefore, the target will be restricted to the population in the service industry sector which has hyper-competition in the telecommunications, computing, airlines, ticketing/travel agents, banking, and financial service sectors. The list of service industry sectors and target sample will be selected from secondary data provided by the Thailand Company Information 2000 directory book, 2003-2004 edition, from Advance Research (AR) Company, the leading research company in Thailand. The list was double-checked from the Register Listed Department, Ministry of Commerce of Thailand, Stock Exchange of Thailand index. The large companies were listed in the directory based on the criteria that their revenue per annum was over 200 million baht and that they had current registered

capital over 200 million baht. The sample size is proportional to the population. The random sampling method was applied at random to a proportional sub-sample of the total population in each service industry sector. The population (N) of the study consists of 853 enterprises. Hence, the sample size of the study is about 482 enterprises. The target respondents will be CEOs or managing directors who have the authority to make decisions on the business competitive strategies usage in the organization and have involvement in determining what the level of EC adoption should be.

Instrument Design

To develop the questionnaire or survey tool, each question of the construct variable is developed from reviewing the previous research. Five experts in the area of business strategy, information technology (IT), electric commerce, with strong experiences in business and academia were consulted. One was from the Bank of Thailand, one from a leading commercial Thai bank, and three PhD instructors from Business Administration faculty and computer science faculty at leading universities. The study applied faced validity to check what to measure. Justified the content throughout the questionnaire development. In addition, the original questionnaire was first written in English and translated into Thai by an expert translator. The expert then translated the Thai version back into English again. The reverse translation is the method to ensure the validity of the translation.

Pilot Study

For the purpose of the reliability measure, this survey tool was pre-tested with executive MBA students, who were studying in the previous year at the Commerce Faculty of leading universities – Chulalongkorn University and Thammasat University. One hundred students from both universities qualified a sample of the pilot study, because they had strong working experience for approximately eight years in upper management within service companies. They included managing directors, presidents and business owners. Besides, the survey tool was then clarified and verified by experts, committee advisors, and the experts and translators. If any question has a value of corrected item-total correlation (Alpha) lower than 0.60, that question must be rephrased. Advisors and experts re-evaluated the rephrased questions. If any question had an alpha value more than 0.60, it was moved to another group of variables if the experts suggested.

Data collection

The survey took place during August, 2005. One-hundred-twenty-four questionnaires were returned after the first three weeks had passed. Twenty-five questionnaires were returned as undeliverable for various reasons. In addition, telephone calls were used to follow up and to inquire about the reasons the respondents had not yet returned their questionnaires. Most of the recipients who chose not to

return the questionnaire did so because they were unwilling to discuss the company's competitive strategies and company information. Some companies could not reveal their business strategies because of internal policies.

The second round of questionnaires was mailed during the last week of September, 2005. Approximately 48 questionnaires were returned. Some companies called back to inform that the CEO or managing director was traveling. The third round of questionnaires was sent out during the third week of October, 2005. There were 23 questionnaires returned. In addition, there were four E-questionnaires returned, since some respondents were traveling. In total, 199 questionnaires were completed. There were incomplete answers on 13 questionnaires wherein company information and data on E-commerce and information technology management were absent. Therefore, 186 questionnaires were fully completed. The response rate was 38.5 percent (from $n = 482$). The valid questionnaires were encoded to process the findings by using SPSS.

The quantitative data analysis process is manipulated according to the following procedures: Multivariate multiple regression (MMR) was applied to find the effect of each group of independent variables on each group of dependent variables, since the sub-variables of the independent variables have an interrelationship. Multiple Analysis of Covariance (MANCOVA) was applied to measure the relationship between independent variables and dependent variables when the moderating factors were controlled. In-depth interviews of the CEO or the managing director who filled out the questionnaire occurred when needed to clarify the reasons that their results did not correlate with the results of previous studies.

THE RESULTS

Hypotheses Testing

MMR was conducted to test the effect on each of the five competitive strategies utilized on three levels of EC implemented by large service firms in Thailand. MMR is used to test the effect of multivariate independent variables on the multivariate dependent variables at the same time. Then Pearson's correlation analysis was conducted to analyze whether or not multicollinearity problems affect the set of independent variables and dependent variable. Nonetheless, multivariate tests indicated that there were positive effects from each of the five strategies utilized on the determination of each level of EC adopted in terms of web-based, B2C, and B2B.

The results revealed all strategies are significant (as show in Table 1). Speed strategy ($p < .000$), cost leadership strategy ($p < .000$) were strongly statistically significant. The findings confirm Hypothesis 1 is based on research objective 1. Therefore, hypothesis 1 is accepted.

Table 1 : Summary Results of the Effect of Business Strategies Utilized on the Level of EC Adoption

Dependent Variable: Level of adoption total	p-value.
Cost leadership	.000***
Focus	.005**
Differentiation	.006*
Speed of service	.000***
Quality of service	.042*

Note: ***Significance level $p=0.000$
**Significance level $p<0.005$
*Significant at $p < 0.01$

In accordance with research objective 2, the research question explored how the competitive environment factors (number of competitors, distribution channels, and market share) moderate the relationship between the different competitive strategies used in terms of cost leadership, focus, differentiation, speed and quality and the level of EC adopted in terms of web-based, B2C, and B2B by large service enterprises in Thailand. Hypothesis 2 was tested. Based on the Porter's competitive industry analysis framework (2001, 1985), competitive environment factors (the increasing number

of competitors, distribution channels, and market share) might be external factors that moderate the relationship between different strategies utilized and determine the level of EC activities adopted in terms of web-based company level, B2C level, and B2B level in the organization. The hypothesis was not supported by multivariate analysis of covariance (MANCOVA). They were not statistically significant (Table 2). Hypothesis 2 is rejected in terms of number of competitors ($p>0.05$) and market share ($p>0.05$). Therefore, hypothesis 2 is accepted only in terms of distribution channels ($p<0.05$).

Table 2 : Summary Results of the Moderating Effect of Competitive Environment Factors on the Relationship between Different Competitive Strategies Utilized and Level of EC Adoption

Dependent Variable: Level of adoption total	p-value
No. of Competitors	.903
Distribution Channels	.046*
Market Share	.274
Competitive Strategies Utilized	.258

Note: * Significant at $p < 0.05$

According to the third research objective was to explore organizational factors (degree of decentralization, IT resources, IT capabilities, IT knowledge, and CEO support) as moderating variables in the relationship between the different competitive strategies utilized (cost leadership, focus, differentiation, speed, and quality) and the level of EC adoption (web-based, B2C, and B2B). Hypothesis 3 was tested. Hypothesis 3 is rejected. The results from Table 3 indicate that they were not statistically significant ($p>0.05$). In

addition, when the moderating factors are controlled—decentralization, IT resources, IT capabilities, IT knowledge, and CEO support—the competitive strategies utilized strongly influenced the relationship level of EC adoption ($p = .009$). This could imply that current organizational factors had no positive effects on the relationship between different competitive strategies utilized and the level of EC adoption. The summary of all hypotheses shown in Table 4.

Table 3: Summary Results of The Moderating Effect of Decentralization, IT resources, IT capabilities, IT knowledge, and CEO support on the Relationship between Different Competitive Strategies Utilized

Dependent Variable: Level of adoption total	p-value
Decentralization	.776
IT resources	.299
IT capabilities	.155
IT knowledge	.824
CEO support	.554
Competitive Strategies Utilized	.009**

Note: **Significance level $p < 0.01$

DISCUSSION AND CONCLUSION

The research findings from descriptive data revealed that all industries applied cost strategies, while some of them did not use the other strategies. For example, the transportation and logistics industries had used all strategies except differentiation strategy. Moreover, the findings reported that even though all of service industries had used different levels of EC activities, they had most heavily adopted only the basic web-based levels of EC. The firms that had most heavily used cost leadership strategies had decided to extensively implement basic web-based activities. They were much concerned with the web-based business activities in order to reduce communication costs and increase the efficiency of their communication systems. They had employed advanced B2B activities only at low levels. The businesses that had the most focused strategies had implemented web-based activities at high levels in order to support their

primary business activities and emphasize particular types of distribution channels. They had only used low level B2C activities. The firms that had most heavily used differentiation strategies had decided to implement web-based activities at very high levels. These companies were very concerned with the business activities that had used B2C and B2B activities at moderate levels. The firms that were most heavily using speed strategies had decided to implement web-based activities at high levels. They were more concerned with the business activities that improved speed of delivery of service to customers when compared to the industry average. The businesses that heavily relied on quality strategies had implemented web-based activities at high levels in order to support the primary business activities that increased the quality of service to meet the customers' standard satisfaction levels. These firms implemented B2C activities at low levels.

Table 4: Summary Results for the Hypotheses Tests

Summary of Hypotheses	Confirmed
H 1: the level of EC adopted by large service enterprises in Thailand (in terms of web-based, B2C, and B2B) will be positively related to the different competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed, and quality).	Accepted
H 2: The relationship between the different competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed, and quality) and the level of EC adopted (in terms of web-based, B2C, and B2B) by large enterprises in Thailand is moderated by the competitive environment factors (in terms of number of competitors, distribution channels, and market share).	Accepted only in terms of distribution channels
H 3: The relationship between the different competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed, and quality) and the level of EC adopted (in terms of web-based, B2C, and B2B) by large enterprises in Thailand is moderated by the organizational factors (in terms of degree of decentralization, IT resources, IT capabilities, IT knowledge, and CEO support).	Rejected

To summarize, the findings confirmed that Thai service businesses use proactive strategies to lead their industries by adopting multi-level EC activities in order to offer value-added services to meet customer needs and to enhance their competitive advantage. Therefore, hypothesis 1 was to test the Western concept of whether the competitive strategies used had positive effects on determining the level of EC (Porter, 1985) adopted by large service-enterprises in Thailand. This study confirmed that the Porter framework was valid when applied within the Thai market. It is possible that large service enterprises correctly exploit the benefits of EC in order to enhance their competitive advantage. As a result, the problems related to unsuccessful B2C and B2B implementations within Thailand were due to the reluctance to install full EC activities based upon other relevant factors that need to be determined through future research.

The Influence of Competitive Environmental Factors

The findings indicated that of the competitive environmental factors, distribution channels primarily influenced the relationship of competitive strategies in terms of cost leadership, focus, differentiation, speed, and quality. These factors had the strongest positive effect on the level of EC in terms of web-based, B2C, and B2B applications adopted by large service enterprises in Thailand.

The research findings indicated that the number of competitors did not affect the relationship between the different competitive strategies used and the level of EC adoption. Hence the findings did not support the hypothesis, which claimed that the relationship between the different competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed and quality) and the level of EC adopted (in terms of web-based, B2C, and B2B) by large service enterprises in Thailand is affected by the number of competitors. The qualitative information from in-depth interviews clarified this point. The rivals within service industries were observing the situation to determine whether to increase the use of advanced levels of EC. As a result, no one industry had significant investments in complicated EC activities. Further, the majority of service businesses did not possess new EC technologies and did not consistently use technologies at any level. Most of the competitors were not willing to risk launching themselves into the EC environment, especially using B2C and B2B technologies.

The research findings indicated that all service industries had adopted only low to moderate levels of B2C and B2B. In addition, the qualitative findings revealed that increasing numbers of competitors in the EC environment did not significantly result in increased implementations of EC solutions. The majority of the industries had adopted EC only to improve internal efficiency and meet the customers' required satisfaction levels rather than implementing as a response to the increasing number of com-

petitors. Within the Thai competitive environment, the qualitative information directly indicated that most of the firms did not feel threatened by the competitors that had successfully implemented EC. The leading consumer product firms accepted that advanced levels of EC such as B2C, and B2B had the potential to generate higher sales volume through their inherent benefits. Regarding EC adoption, they claimed that they could not focus solely on the competitor's behaviors. They had chosen instead to heavily use cost leadership strategies and use EC adoption in order to respond to changing customer needs and lifestyles. They had plans to more heavily implement advanced levels of EC when the customers had greater needs.

The research findings revealed that distribution channels influenced the relationship between different competitive strategies and the level of EC adoption. Based on the generic strategies, the findings revealed that firms had perceived that each level of EC could generate new customers and increase market share in remote customer segments in ways that the existing channels could not do. The findings showed that distribution channels had the highest influence at the web-based level. The findings also showed that the firms that primarily used speed and focus strategies could offer specific service lines to specific customer groups in specific areas through online channels. Based on differentiation strategy orientation, the findings indicated that firms had perceived that differentiation into new channels that supported the existing channels provided two-way communication at anytime and anywhere with lower communication costs. Qualitative information expanded these findings and indicated that most of the firms had perceived that new B2C and B2B channels could not generate significant new market share or company revenue within Thailand. However, it could improve communication efficiency throughout distribution channels and with customers in remote areas. In addition, this online channel could serve the needs of the new generation who are accustomed to the cyber lifestyle. In the near future, online channels will have a dominant role in digital life. Notably, digital applications could soon connect wireless devices such as cell phones and PDAs. 3G mobile technologies encourage this trend. Respondents perceived that channels have influence on the relationship between the different competitive strategies used and level of EC adoption.

The research findings revealed that market share did not influence the relationship between business strategies and the level of EC adoption in Thailand. This meant that market share factor has no immediate influence on the enterprise's determination to adopt EC. Many firms were facing fierce competition and were fighting to protect their market share, but they had determined that the market share factor was not enough reason to determine the level of EC adoption. The in-depth interviews supported the findings that

early adoption of EC occurred only by the proactive companies in big cities. In addition, the respondents related that they did not use EC tools to respond to the decreasing rate of market share in their main industry by increasing market share from new target customer groups on the Internet. Hence, EC is perceived by the enterprises as having no potential to generate new market share and they did not view it as an effective tool to respond to rivals. Even among the early adopters, there was little use of B2C and B2B services. It was found, however, that the educational, airline & hotel & travel industries that most heavily used speed strategies adopted B2B EC activities more willingly when compared to other service industries. These findings do not support the hypothesis which stated that the relationship between the competitive strategies used (in terms of cost leadership, focus, differentiation, speed, and quality) and the level of EC adopted (in terms of by web-based, B2C, B2) by large enterprises in Thailand is affected by market share. The findings revealed that when competitive environmental factors are controlled, the competitive strategies had no influence on the level of EC adoption. This could imply that based on the present competitive environmental situation of whole industries, the current business strategies utilized had no positive effects on the level of EC adoption. Instead, firms must revise their competitive strategies to fit the dynamic environment and determine appropriate levels of EC. Moore's (1991) statements supported this finding. He claimed that business could not choose one of the business strategies and simply stick with it for the life of their business. They must instead adopt different strategies depending on the changing market structure, time concerns, and changing customer behaviors.

The Influence of Organizational Factors

The findings indicated that organizational factors including decentralization, IT resources, IT capabilities, IT knowledge, and CEO support had no influence on the relationship of competitive strategies that utilized differentiation, speed, and quality to determine the level of EC in terms of web-based, B2C, and B2B adopted by large service enterprises in Thailand. Hence, the findings did not support hypotheses 3.

The research findings revealed that degree of decentralization did not affect the relationship between the competitive strategies used and the level of EC adoption. The firms had both centralized and decentralized management styles. The sample included firms with flat organizational structures and both functional and matrix structures. The evidence from the descriptive data revealed that the enterprises which preferred speed strategy utilization most likely empowered the front office employees to give fast response to customer complaints and to rapidly address contingent incidents. Moreover, the information from qualitative interviews revealed that the EC

implementation was not a new project and did not present a very high risk at the initial investment stage as when compared to the 2 to 3 years before.

The findings revealed that firms empowered the lower level middle managers and supervisors to get involved in the EC planning and implementation. One of the respondents from the consumer and retail segment was in the top management team and related that he empowered the staff all the way to the bottom levels to share the ideas and take on responsibilities related to the EC projects in order to reduce resistance when moving through the implementation process. Those companies leveraged trial and error experiences and change management models and had informed attitudes about EC utilization and adoption within the Thai market environment. These findings therefore do not support the hypothesis which stated that the relationship between the different competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed, and quality) and the level of EC adopted (in terms of by web-based, B2C, and B2B) by large service enterprises in Thailand is affected by degree of decentralization.

The research findings revealed that IT resources did not affect the relationship between the different competitive strategies used and the level of EC adoption. The information from qualitative interviews supported the results by indicating that the majority of service industry sectors had most frequently outsourced physical IT resources to IT expert companies at all levels of EC. In addition, they had invested little to develop their own IT resources in order to install the EC platforms to support basic EC activities. This was largely due to the instability of EC technology in Thailand and the high risk of keeping up with rapidly changing technologies. Some respondents added that they had developed their own IT resources for only small scale information systems that were relevant to EC activities. The qualitative information strongly implied that even companies that outsourced their IT systems need to maintain some of their own IT resources for successful implementation of the outsourced services and applications. These findings do not support the hypothesis that stated that the relationship between the different competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed, and quality) and the level of EC adopted (in terms of by web-based, B2C, B2B) by large service enterprises in Thailand is affected by IT resources.

The research findings revealed that IT capabilities did not impact the relationship between competitive strategies used and the level of EC adoption within Thailand. The qualitative information supported the statement. Most of the firms in service industries had heavily applied web-based services through IT outsourcing because the new capabilities were difficult to develop and needed higher amounts of capital to develop the IT functionality needed to improve capabilities and to

install and assimilate them throughout the organization. The in-depth interviews indicated that IT outsourcing was an optimal solution because it could perform new kinds of business activities without disturbing the existing routine functions. Hence, the findings do not support the hypothesis which stated that the relationship between the competitive strategies utilized (in terms of cost leadership, focus, differentiation, speed and quality) and the level of E-commerce adopted (in terms of by web-based, B2C, and B2B) by large service enterprises in Thailand is affected by IT capabilities.

The research findings revealed that IT knowledge did not affect the influence of different business strategies that utilized EC. The qualitative information supported the findings that most of the respondents had brought in the IT resources and IT knowledge for the initial EC installation. As mentioned above, even companies that did not have enough IT knowledge could outsource in order to reduce the initial risk. This indicates that Thailand is in an early stage of EC adoption when compared to the origin countries of EC. This resulted in a labor market situation where it is very difficult to hire Thai employees who have IT knowledge with an understanding of EC. Most of the respondents revealed that they could outsource IT knowledge through temporary foreign IT staff who worked for the leading IT multinational firms where they had gained knowledge from the IT outsourcing software companies. These findings do not support the hypothesis, which stated that the relationship between the different competitive strategies used (in terms of cost leadership, focus, differentiation, speed, and quality) and the level of EC adoption (in terms of web-based, B2C, B2B) by large enterprises in Thailand is affected by IT knowledge. The research findings revealed that CEO support did not affect the relationship between different competitive strategies used and the level of EC adoption. The qualitative information revealed that CEOs had leveraged the experience from trial and error and were now more confident in the outcomes than before and able to use this knowledge when first implementing EC solutions. They had noted especially that the EC web-based level was an effective tool for today's businesses because the businesses could measure the outcomes in terms of reduced communications costs and improved customer satisfaction levels. Most of the respondents revealed that the CEO had supported efforts to continuously implement more advanced levels of EC. The in-depth interviews and descriptive data supported the results. The respondents indicated that they were likely to outsource EC technologies and would be more willing to outsource complicated E-commerce activities. EC technology is a new thing in Thailand and needs time before it will be widely adopted by multiple groups of end users. Hence, the CEO support factors seemed to not be an important issue at present. These findings do not support the hypothesis that

stated that the relationship between the different competitive strategies used (in terms of cost leadership, focus, differentiation, speed, and quality) and the level of EC adoption (in terms of by web-based, B2C, B2B) by large enterprises in Thailand is affected by CEO support. In sum, The findings indicated that organizational factors including decentralization, IT resources, IT capabilities, IT knowledge, and CEO support had a strong influence on the level of EC adoption. Especially, the strategies utilized had the strongest influence on of the B2C level of EC adoption. This could imply that even the present organizational factors are not statically significant on the relationship between competitive strategies utilized and the level of EC adopted by large service-enterprises in Thailand. However, it could imply that the respondents had critically perceived that the competitive strategies were a strong influence in determining the level of EC adoption.

Business Strategies Used and the Advanced Level of EC

According to the research findings confirmed that the large service enterprises in Thailand had not adopted EC as a response to other firms or because it was a popular trend. Instead, they had adopted EC based on the competitive business strategies utilized. They still view EC as being a new trend in Thailand. Although each service industry had distinguishing characteristics in terms of service lines, target market segments, their own resources, and company strengths and weaknesses, those with distinct business strategies heavily adopted web-based EC activities.

However, the firms that most heavily used all strategies must heavily adopt web-based activities in order to enhance workflow efficiency and reduce communication costs. Firms that strongly used speed, focus, and differentiation strategies must stress the adoption of B2C and B2B forms of EC in order to enhance their competitive advantage through the offering of specific value added services targeted at specific customers and to meet changing customer needs. Firms that strongly used quality strategies must maintain web-based E activities in order to provide the quality of service delivery needed to meet customer satisfaction requirements.

The firms that strongly applied cost leadership must adopt B2B forms of EC. Firms that heavily used speed, focus, and differentiation strategies must adopt full scale EC activities that incorporate web-based, B2C, and B2B solutions. The firms that heavily used differentiation strategies adopted only web-based level activities. Even though these firms initiated web-based EC to utilize the inherent benefits, the adoption also generated competitive advantage by enhancing brand image and brand reputation, reducing the marketing costs to specific customers, and offering added value to services. This web based strategy did not generate significant

competitive advantage in terms of enhancing facilities through the new channels specific to target users (younger generation, travelers, or foreigners). Therefore, in order to impact the future level of EC, this study strongly recommends that firms (especially banking and financial institutions, IT & OA, and telecommunications firms) must heavily adopt B2C and B2B activities so that they may exploit the inherent benefits of those service applications. Firms could use B2C to trade online and offer offline payment using secure encryption in order to avoid the barriers mentioned above. Firms could use B2B to enhance their service offerings to partners. Those firms must also consider the issue of potential market share generated from those target groups.

The firms with the heaviest use of speed strategy had considered the business activities as described but had adopted only web-based levels. Even now, the firms perceive that the outcomes from their web-based EC activities in terms of inherent benefits also generated much competitive advantage by enhancing the speed of communication in order to meet customer satisfaction. However, the web-based strategies did not generate much competitive advantage in terms of enhancing speed of service to customers or speed of delivery service for users and the customers at remote areas. In order to approach the advanced levels of EC, this study strongly recommends that firms (particularly airlines, hotels & travel firms, consumer retails firms, and banking and financial firms) must heavily adopt both B2C and B2B levels. Those industries have adopted B2B and B2C at a higher percentage rate when compared to the other service industries. Based on the logic of the speed strategy, the firms could heavily apply those three levels of E-commerce in order to support and integrate those channels throughout the value chain in order to offer differentiation strategies. For example, B2C level firms could trade online, and offer offline payment through the use of encrypted security services in order to avoid the barriers as mentioned above. Firms could use B2B to offer specific service lines to business partners. However, those firms must analyze project feasibility before they fully adopt advanced EC activities.

The firms with the heaviest use of quality strategies had considered the business activities as described, but had adopted only web-based levels. At present time, the web-based, B2C, B2B EC applications did not generate much competitive advantage in terms of improving service quality regarding reliability, safety, and trust. Instead, the firms had perceived that web-based applications could enhance the brand image, reduce communication costs, and improve customer satisfaction. Before approaching the advanced levels of EC, this study strongly recommends that firms must heavily adopt web-based applications because firms could exploit the additional benefits such as E-marketing tools to support the traditional marketing strategy. Determine the need for EC adoption, firms should

research and base their EC strategy on changing customer needs and behaviors.

LIMITATIONS AND FUTURE RESEARCH NEEDS

The research study has described a number of significant results, but some limitations must be mentioned. First, the survey respondents held top positions in their companies and had made the final decisions to adopt EC. As such, they were quite busy and had limited time to devote to the questionnaire. The majority of the respondents were traveling abroad. This made it difficult to obtain completed surveys in a timely fashion. Second, according to Thai business culture, the majority of respondents viewed their strategies as a sensitive issue that must be kept confidential. Therefore, some of the companies had confidentiality policies that prevented respondents from disclosing sensitive data. Third, the large enterprises had many departmental gate keepers who prevented the survey from reaching the desired respondent. Finally, some of the respondents were expatriate workers leading multinational firms. Many of these workers relocate frequently and it takes time for the researcher to resend and follow up the completed questionnaire.

One potential future direction is to study the level of EC adopted by large enterprises in other industries in Thailand. For instance, manufacturing industries where the firm strategies are more clearly defined and most firms participate in the EC. Comparisons could also be made between industries that have used different strategies and the industries where the levels of EC adoption were more ambiguous. It may be useful to compare how high and low EC adoption levels are between web-based and B2B. According to the findings, consumer behaviors concentric is the main focus of firm's strategic formulation. Hence, the future research should be concluded to investigate how customization strategy affects the level of EC adoption in the Thailand business environment. As mentioned in the research, another strategic framework, Mile's and Snow (1976), would be an attractive model with which to extend research of this type. It would be interesting to compare the results found in the study of the corporate end users to the results found in similar studies of large businesses.

A comparative study with other Asian country's service firms would be interesting for future research to see what different ideas large service enterprises consider when attempting to adopt various levels of EC. Finally, this study was concerned with competitive strategies as they existed at a particular point of time. Hence, the strategy might be modified to fit a dynamic environment at all times. It would be interesting to conduct research over time to observe what factors drive the large service enterprises to adopt future levels of EC applications.

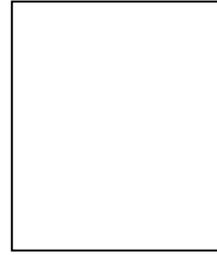
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Dr. Luckxawan Pimsawadi received her Doctor of Philosophy in Business Administration (Strategic Management) from Bangkok University (a cooperative program with University of Nebraska, Lincoln, USA), and a M.B.A (Gold Medal Award) from Bangkok University. She is a full-time lecturer in the School of Modern Business Management, Bangkok University. Her research, in-house training and business consulting focus on strategic management, strategic leadership and E-commerce issues in Thailand. Besides, she has fifteen years experience in managerial positions at Kanebo Cosmetics (Thailand) Co.Ltd, Bell Esthetics Center (Thailand) Co.Ltd, and Sevenson Hair Center (Thailand) Co.Ltd.



Prof. Dr. Lester A. Digman is Professor of Business Administration at University of Nebraska-Lincoln, U.S.A. and Adjunct Professor of Business Administration at Bangkok University. He holds a Ph.D. in Management and Operations Research, a M.S.I.E. in Industrial and Management Engineering) and a B.S.M.E. in Mechanical Engineering), University of Iowa, U.S.A. He has written fourteen books, made contributions to 13 others, and published 34 articles in journals such as the Harvard Business Review, Organizational Dynamics, and Operations Research. Dr. Digman has also written 91 conference proceedings papers, presented 126 professional papers, and authored 27 reports and monographs. Dr. Digman is a member of several prestigious associations such as the Institute for Operations Research and Management Sciences (Founding Member), the Pan Pacific Business Association (Fellow). He is listed in Who's Who in America and seven other editions of Who's Who.